

new claims 11-20 more clearly define the invention and distinguish the invention from the prior art cited in the office action.

Original claims 1 and 9 were rejected under 35 U.S.C. 103(a) as being unpatentable over Shvartsman EP 0 439 050 A2. Shvartsman was held to disclose a process for making an optical image element by applying a curable film to the surface of a transparent substrate, embossing the coated surface by pressing it with an embossing die and then passing actinic radiation through the transparent substrate so as to cure the film while it is in contact with the embossing dies and then separating the die from the photo hardened film. The newly submitted claims 11-20 have been revised to clearly distinguish Applicants from this Shvartsman.

Shvartsman is directed to a method for making an optical image element having a relief hologram on a laminated substrate by using a solid non-transparent embossing dye and curing the image element by passing UV radiation through the substrate. In contrast, Applicants' process is directed to forming a decorative design on a solid non-transparent substrate, such as an automotive vehicle substrate or part, using partially or totally translucent embossing dies and irradiating the decorative design through these translucent embossing dies. Applicants do not irradiate through the substrate as taught by Shvartsman but irradiate through the translucent dies used to emboss the decorative pattern on the substrate. The claims clearly point out that irradiation is accomplished through the translucent embossing dies and not through the substrate as is taught by Shvartsman. The substrates used in Applicants' process are not transparent and irradiation could not be carried out in the manner taught by Shvartsman. Furthermore, one could not irradiate the pattern on the substrate through the embossing dies of Shvartsman since Shvartsman uses solid and not translucent embossing dies.

Shvartsman is directed to a concept that is entirely different from Applicants' process. Shvartsman is forming relief holographic images as a carrier for information, in contrast, Applicants' invention is directed to

forming a decorative surface design on a substrate. There are no teachings in Shvartsman that would lead one skilled in the art to form decorative surface designs having different optical effects on a solid non-transparent substrate which is the nub of Applicants' invention and as pointed out above, the process taught by Shvartsman will not be operative to form Applicants' decorative substrates since Shvartsman teaches irradiating through the substrate.

Original claims 2-5 were rejected under 35 U.S.C. 103(a) as being unpatentable over Shvartsman EP 0 439 050 A2 and Arai et al. US 4,310,370. Newly submitted claims 12-14 that are directly or indirectly dependent on claim 11 have been submitted and are related to claims 2-5 but are directed to the use of high energy radiation in steps c) and e) and claim 14 is directed to the additional use of thermal curing in step e). Support for these claims is on page 3, lines 19-26 and page 13, lines 19-21. These claims are clearly outside of the teachings of these two cited references. The same arguments in regard to Shvartsman as set forth above also apply to this rejection and will not be repeated. Arai does not make up for the deficiencies of Shvartsman and does not teach or suggest irradiation of an embossed surface through a translucent embossing dye as is required in Applicants' novel process. Arai does not disclose a process for forming a translucent die plate or that a translucent die plate can be used to emboss other surfaces. Arai, col. 12 lines 14-20, mentioned by the Examiner, only discloses that a surface with an uneven pattern of a decorative article can be utilized as a pressing surface for producing another separate decorative article. There is no teaching that a translucent die can be used as is required in Applicants' process to form a decorative design. Furthermore, Applicants require the use of dies having an embossing pattern having relief amplitudes spaced 100 to 20,000 nm to provide the desired optical image. Nothing like that is taught or disclosed in Arai and any images resulting from Arai would have an entirely different appearance from those produced by Applicants' process.

Arai is directed to a completely different embossing principle wherein a hardenable material is applied to a deformable sheet and both the hardenable material and the sheet are deformed under pressure to produce a surface with concavities and convexities. In Applicants' process, only the coating agent that has been applied to a substrate is deformed. Obviously, one would not be able to deform the steel substrate of an automotive body with the embossing step. In Arai, the reliefs formed are visible to the naked eye and are not in the nanometer range of Applicants' invention and would not have the same optical effects as those formed by Applicants' process that requires the pattern spacing to be in the 100 – 20,000 nm range. The special effects that Applicants' process forms are described in the specification on page 4, lines 6-18 and page 15, lines 11-31 and certainly could not be achieved by using the process of Arai.

Original claims 6 and 7 were rejected under 35 U.S.C. 103(a) as being unpatentable over Shvartsman EP 0 439 050 A2 and Soeding US 4,126,726. Newly submitted claims 15 and 16 that are directly dependent on claim 11 have been submitted and related to claims 6 and 7 but are clearly outside of the teachings of these two cited references. The same arguments in regard to Shvartsman as set forth above also apply to this rejection and will not be repeated. Soeding does not make up for the deficiencies of Shvartsman and does not teach the use of a translucent embossing die and irradiating the embossed coating through the die to form a decorative finish.

Soeding is directed to forming an information carrier for high density storage. In contrast, Applicants' invention is directed to a process for producing a decorative design on a substrate. In Soeding an un-profiled disc, which has a coating that has been applied on both sides of the disc, is embossed on both sides to provide a profiled surface structure. No irradiation is carried out through a translucent die as is required in Applicants' process. Further, Soeding applies a metallic layer over the profiled surface structure, which of course is not done by Applicants, but if

done, would result in an entirely different appearing design with the use of such a metallic layer.

Original claims 8 and 10 were rejected under 35 U.S.C. 103(a) as being unpatentable over Shvartsman EP 0 439 050 A2 and Yi et al. US 4,978,593. Newly submitted claims 17-19 have been submitted and are related to claims 8 and 10 but are clearly outside of the teachings of these two cited references. The same arguments in regard to Shvartsman as set forth above also apply to this rejection and will not be repeated. Yi does not make up for the deficiencies of Shvartsman.

Yi is directed a method for making holograms on transparent surfaces, e.g., automobile windows, but does teach or disclose a method for embossing a decorative design on a coated surface of an automobile. Yi shows a process in which a temporary support is used to form the hologram and then the hologram is laminated to a windshield. There is no teaching, as is required in Applicants' process, to form a decorative relief design using an embossing die and irradiating through the embossing die for curing. Nor is there any disclosure or teaching as to the optical effects produced with Applicants' process.

Summary

In view of the foregoing amendments and remarks, Applicants submit that the newly submitted claims are patentable and unobvious in view of the cited references and the application is in condition for allowance. In order to expedite disposition of this case, the Examiner is invited to contact Applicants' representative at the telephone number below to resolve any remaining issues.

Application No. 09/856,345
Case No.: FA 1010 US NA

If there are any fees due over and above the fee for the one month extension of time, please charge such fee to Deposit Account No. 04-1928 (E.I. du Pont de Nemours and Company).

Respectfully Submitted,

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